Epilog

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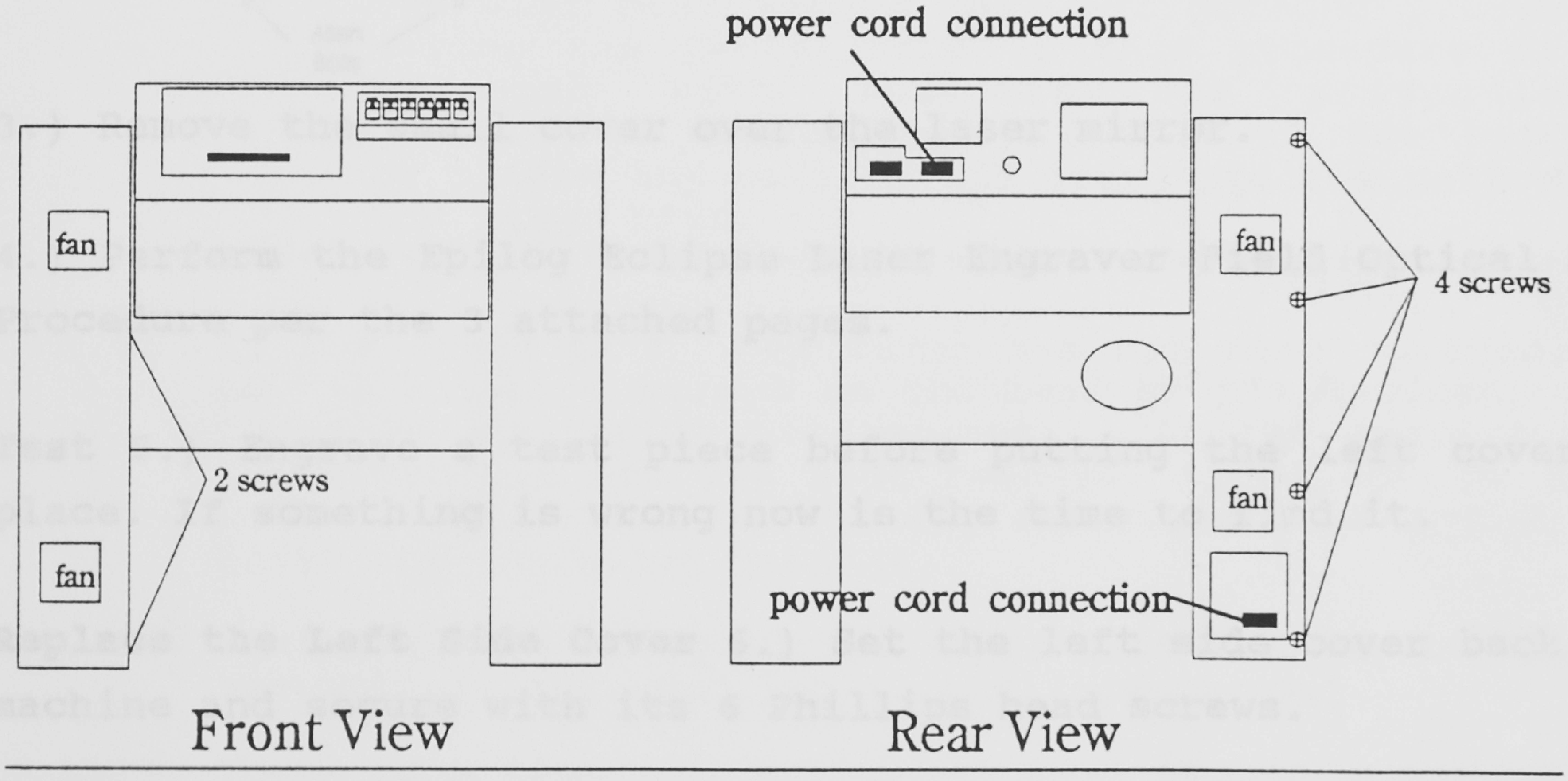
PROCEDURE: **Alligning the Laser mirror**

Tools needed: Phillips screw driver
Small Phillips screw driver

WARNING 120 Volt circuitry will be exposed. Please follow the procedure.

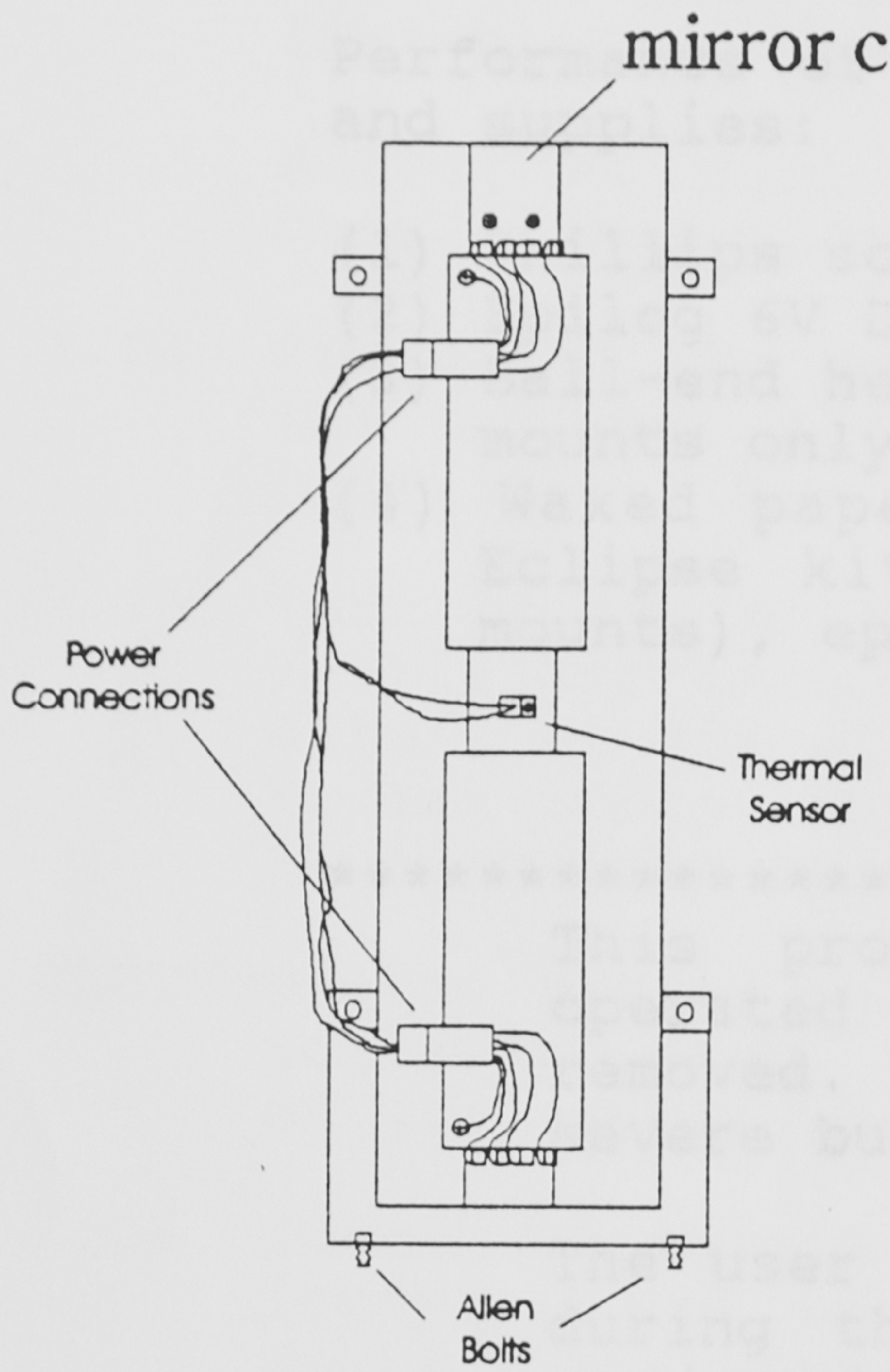
CAUTION Mirrors are fragile and should be handled with care, please work carefully.

1.) First unplug the power cords.



2.) **Removing the Cover for Laser Examination**

To get to the laser it is necessary to remove the left leg side cover. To remove the left leg side cover you need first to remove the 2 front fan covers. These snap into place and can easily be levered off. Next remove the 2 Phillips head screws on the inside front edge and the 4 on the back of the machine. Remove the left cover.



Laser Assembly
Figure 2

3.) Remove the small cover over the laser mirror.

4.) Perform the Epilog Eclipse Laser Engraver Field Optical Alignment Procedure per the 3 attached pages.

Test 5.) Engrave a test piece before putting the left cover back in place. If something is wrong now is the time to find it.

Replace the Left Side Cover 6.) Set the left side cover back onto the machine and secure with its 6 Phillips head screws.

Returning the old parts 7.) There is no charge for the new parts as long as the old parts are returned to Epilog at the address on the letterhead. We really need the machined mount back so we can glue a new mirror in place and have it ready for next time.

As always technical support is available by phone.

Epilog Eclipse Laser Engraver
Field Optical Alignment Procedure

1.00 This procedure allows the user to align the optics of the Epilog Eclipse laser engraver to factory specifications. It is typically performed if the laser assembly or its beam steering mirror have been replaced in the field.

Performance of the procedure requires the following tools and supplies:

(1) Phillips screwdrivers, #1 and #2
(2) Epilog 6V DC Battery Pack with clip leads
(3) Ball-end hex (Allen) driver, 7/64 in. (New-style mirror mounts only).
(4) Waxed paper, mirror-cleaning materials from the Eclipse kit, RTV silicone adhesive (Old-style mirror mounts), epoxy cement (New-style mirror mounts).

PROCEDURE

************************* WARNING *************************

This procedure requires that the laser be operated with the machine's protective cover removed. Power levels are sufficient to inflict severe burns.

The user MUST ENSURE that all persons present during the performance of this procedure are equipped with adequate eye protection (eyeglasses or goggles) and that no one looks or places any part of his body into the path of the laser beam.

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1.01 If the engraver's top cover has not been removed, do so now (5 Phillips screws on the rear of the cabinet, and two thumb screws inside the cabinet). If the engraver's left leg cover has not yet been removed, do so now (4 Phillips screws on the rear of the leg and two on the inside front, under the engraving cabinet).

1.02 Remove the steering mirror cover from the top of the laser assembly in the left leg (2 Phillips screws).

1.03 There have been two styles of beam steering mirror mounts used in the Eclipse laser engraver, which are fully interchangeable for replacement purposes. The old-style mount is black machined metal and has two thumbscrews on the rear of the mount. The new-style mount is gold- or silver-colored sheet metal and has three hex (Allen) screws on the rear of the mount. The screws have been secured at the factory using RTV silicone (old-style) or epoxy cement (new-style).

If necessary, remove the securing adhesives from the mount by carefully cutting it away with an X-acto knife. The epoxy used on the new-style mount is more easily removed by first "breaking" the bond: turn the screws slightly and then pry away the broken epoxy with the knife or a small flat-bladed screwdriver.

Remove as much of the cement as possible, ensuring that none of the pieces fall into the machine.

1.04 Pre-align the beam steering mirror by adjusting it so that the movable aluminum plate which carries the mirror is parallel to the fixed plate having the adjustment screws.

1.05 Turn on the engraver. After it has "gone home," grasp the x-axis carriage (lens mount), and move it to its right-most extent of travel. The carriage will resist this, but will "break loose" and move freely when sufficient force (around 2 pounds) is applied.

CAUTION--The battery pack will be connected to the laser in the following step. It must be connected exactly as described or the battery pack MAY EXPLODE.

1.06 Identify the electrical connections nearest the top (output) end of the laser assembly. They consist of a small black wire, a small green wire, and a large red wire; the wires are soldered to terminals on the end of the upper gold-colored cover on the laser assembly.

Connect the black lead on the battery pack to the terminal having the small black wire.

Connect the red lead on the battery pack to the terminal having the small green wire.

ENSURE that no lead of the battery pack is connected to the large red wire!

CAUTION--when performing Step 1.07, the laser will be used to mark a wax-paper target. The laser should be turned on only long enough to mark the target without burning it.

ENSURE that there is adequate fire protection available (extinguishers, etc.) before performing Step 1.07. Secure all flammable materials in the vicinity of the unit under test.

1.07 Hold a piece of wax paper against the left side of the x-axis carriage mirror mount or "fork", so that the beam entrance hole may be seen through the translucent paper. It may be necessary to arrange sufficient room light to see the hole through the paper.

While holding the paper in place over the hole, momentarily depress the left-hand interlock switch lever at the front of the machine. The laser will make a spot on the wax paper.

CAUTION--DO NOT depress the right-hand interlock switch lever.

Repeat this step as necessary, adjusting the steering mirror adjustment screws until the spot is centered on the beam entrance hole on the fork.

1.08 When the correct alignment is obtained, remove the battery pack from the laser. Clean the steering mirror, the carriage mirror, and the laser output optics (facing up, just under the steering mirror on the laser assembly) as instructed in the Eclipse manual. Secure the steering mirror adjustment screws with RTV silicone adhesive (old-style mount) or a two-component fast-curing epoxy cement (new-style mount).

1.09 Replace the laser steering mirror cover, the left leg cover, and the engraver top cover.

This completes the field optical alignment of the Epilog Eclipse laser engraver.